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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,156

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EXAMINER

BADR, HAMID R

ART UNIT

PAPER NUMBER

1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,156	Applicant(s) SAVOLAINEN, JOUKU	
	Examiner HAMID R. BADR	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Objection to Specification

The specification is objected to for including the descriptions of Fig. 5 and Fig. 6. However, these figures are missing in the submitted drawings. Submission of Fig. 5 and Fig. 6 is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2-5, 9-10, 12-13 and 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131

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USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 2-5, 9-10, 12-13 and 19-20 recite the broad recitations 15 seconds to 14 minutes, 70-85C, sulfite ion forming reagent, or 0.05-60 $\mu\text{mol/g}$ protein and the claims also recite 1-10/1-3 minutes, 70-80 C/72-75C, alkali metal or earth alkali metal sulfite, hydrogen sulfite, etc., or 0.5-20 $\mu\text{mol/g}$ protein which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki et al. (US 4,145,455; hereinafter R1). Claims 1-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fujimaki et al. (US 4,145,455; hereinafter R1)

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6. R1 discloses a modified protein composition which is produced by contacting a water soluble protein plant seed protein, cow milk protein etc. with a cysteine enriched plastein.

(Abstract).

7. R1 teaches that when modified protein, i.e. cysteine enriched plastein (e.g. from soybean protein), is heated together with soybean protein in an aqueous medium the mixture shows an extremely increased viscosity (Col.1, lines 57-68 and Col. 2, lines 12-15). Given that the sulfhydryl groups in the cysteine enriched protein react with the substrate protein, crosslinkages are formed throughout the protein network and it is clear that the protein substrate is intrinsically being strengthened and the protein space network causes the viscosity increase.

8. R1 gives a range of proteins which may be used in order to produce the cysteine enriched compositions including milk protein, animal protein, soybean protein, gluten and microbial proteins (Col. 3, lines 1-10).

9. R1 discloses that the sulfhydryl containing protein obtained is contacted with various proteins in an aqueous medium by which the properties of proteins are modified. R1 also discloses that after contacting the proteins with the protein containing sulfhydryl groups, , the mixture may be heated under a mild condition for instance 40-90C and further it may be agitated (Col. 4, lines 10-18). Given that the mixture can be heated for desirable effects, it is obvious that the heat treatment time can be optimized by those of skill in the art for the best results.

10. Regarding the limitations of claims 5 and 15, the generation of free sulfhydryl (-SH) groups can be controlled and optimized for the creation of the reactive protein.

11. R1 discloses the modified properties of the treated proteins in which viscosity, gelation properties, foaming properties are discussed in detain. Various products are disclosed by R1

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including increasing the gel strength in fish paste products, sausages, puddings, soups, promoting the foaming properties of creams, ice creams, and increasing the viscosity of creams, and sauces etc. (Col. 10, lines 54-66).

12. R1 discloses that when the substrate is a heat coagulative protein and the product should be gelled, overheating should be avoided for preventing the undesirable gelation of the product. (Col. 11, lines 7-11). Given the drawbacks of overheating, the optimization of heating treatment regarding the temperature and time is obvious to those of skill in the art.

13. R1 further discloses that the heating and agitation can be carried out during the processing (Col. 11, lines 11-12).

14. On the one hand, while R1 is clearly teaching the role of created sulfhydryl (-SH) groups in crosslinking proteins and the consequence of that crosslinking regarding the improved viscosity, gelling properties and foaming properties of the treated proteins, it is obvious that a protein having free sulfhydryl (-SH) groups can be made by using sulfite as presently claimed or using cysteine.

15. On the other hand, although there is no disclosure that the modified protein is produced by cleaving at least one disulfide bond originally present in said protein to obtain free sulfhydryl groups, it is noted that “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process”, *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) . Further, “although produced by a different process, the burden

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shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product”, *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). See MPEP 2113.

Therefore, absent evidence of criticality regarding the presently claimed process and given that R1 discloses modified protein as claimed, R1 clearly meet the requirements of the present claims.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. WO 9955170. This reference prepares whey proteins with sulfhydryl groups in order to isolate them at particular pH. It does not have the feature of reacting an active protein with another protein as presently claimed. US 3876805 refers to using reducing agents in bread doughs. While the creation of sulfhydryl groups are discussed in bread doughs, many features of the presently claimed invention will remain undisclosed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAMID R. BADR whose telephone number is (571)270-3455. The examiner can normally be reached on M-T 5:30 to 4:30 (Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hamid R Badr
Examiner
Art Unit 1794

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794